

102(b) for claim 13



RESULT 6

AS3MT_RAT

ID AS3MT_RAT STANDARD; PRT; 369 AA.
 AC Q8VHT6;
 DT 04-JAN-2005, integrated into UniProtKB/Swiss-Prot.
 DT 01-MAR-2002, sequence version 1.
 DT 07-MAR-2006, entry version 24.
 DE Arsenite methyltransferase (EC 2.1.1.137) (S-adenosyl-L-methionine:arsenic(III) methyltransferase) (Methylarsonite methyltransferase).
 GN Name=As3mt;
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
 OC Muroidea; Muridae; Murinae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]
 RP NUCLEOTIDE SEQUENCE [MRNA], CHARACTERIZATION, SUBCELLULAR LOCATION, AND MASS SPECTROMETRY.
 RC STRAIN=Fischer 344; TISSUE=Liver;
 RX MEDLINE=21909523; PubMed=11790780; DOI=10.1074/jbc.M110246200;
 RA Lin S., Shi Q., Nix F.B., Styblo M., Beck M.A., Herbin-Davis K.M., Hall L.L., Simeonsson J.B., Thomas D.J.;
 RA "A novel S-adenosyl-L-methionine:arsenic(III) methyltransferase from rat liver cytosol.";
 RT J. Biol. Chem. 277:10795-10803(2002).
 CC -!- FUNCTION: Catalyzes the transfer of a methyl group from AdoMet to trivalent arsenicals producing methylated and dimethylated arsenicals. It methylates arsenite to form methylarsonate, Me-AsO(3)H(2), which is reduced by methylarsonate reductase to methylarsonite, Me-As(OH)2. Methylarsonite is also a substrate and it is converted into the much less toxic compound dimethylarsinate (cacodylate), Me(2)As(O)-OH.
 CC -!- CATALYTIC ACTIVITY: S-adenosyl-L-methionine + arsenite = S-adenosyl-L-homocysteine + methylarsonate.
 CC -!- CATALYTIC ACTIVITY: S-adenosyl-L-methionine + methylarsonite = S-adenosyl-L-homocysteine + dimethylarsinate.
 CC -!- SUBCELLULAR LOCATION: Cytoplasm.
 CC -!- SIMILARITY: Belongs to the methyltransferase superfamily.
 CC -----
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 CC -----
 DR EMBL; AF393243; AAL61609.1; -; mRNA.
 DR Ensembl; ENSRNOG00000020081; Rattus norvegicus.
 DR RGD; 621325; As3mt.
 DR GO; GO:0005829; C:cytosol; IDA.
 DR GO; GO:0030791; F:arsenite methyltransferase activity; IDA.
 DR GO; GO:0030792; F:methylarsonite methyltransferase activity; IDA.
 DR GO; GO:0018872; P:arsonoacetate metabolism; IDA.
 DR GO; GO:0009404; P:toxin metabolism; IDA.
 DR InterPro; IPR001601; Methyltransf.
 DR InterPro; IPR013216; Methyltransf_11.
 DR InterPro; IPR000051; SAM_bd.
 DR Pfam; PF08241; Methyltransf_11; 1.
 DR Pfam; PF01209; Ubie_methyltran; 1.
 KW Methyltransferase; Transferase.
 FT CHAIN 1 369 Arsenite methyltransferase.
 FT /FTId=PRO_0000204449.
 SQ SEQUENCE 369 AA; 41056 MW; BD092F7317B138E6 CRC64;

Query Match 76.8%; Score 1522; DB 1; Length 369;
 Best Local Similarity 76.0%; Pred. No. 3.3e-105;
 Matches 285; Conservative 36; Mismatches 48; Indels 6; Gaps 1;

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Qy     61 CGLVIPEHLENCWILDLGSGSGRDCYVLSQLVGEKGHVTGIDMTKGQVEVAEKYLDYHME 120
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Db     61 CGLVVPEHLENCRILDLGSGSGRDCYVLSQLVGQKGHITGIDMTKVQVEVAKAYLEYHTE 120

Qy    121 KYGFQASNVTFIHGYIEKLGEAGIKNESHDI VVSNCVINLVDPKQQVLQEAYRVLKHGGE 180
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Qy    181 LYFSDVYTSLELPEEIRTHKVLWGECLGGALYWKELAVLAQKIGFCPPRLVTANLITIQN 240
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Db    181 LYFSDVYASLEVSEDIKSHKVLWGECLGGALYWKDLAVIAKKIGFCPPRLVTANIITVGN 240

Qy    241 KELERVIGDCRFVSATFRLFKHSGTKRCQVIYNGGITGHEKELMFDFANFTFKEGEIV 300
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Qy    301 EVDEETAAILKNSRFAQDFLIRPIGEKLPTSGGCSALELKDIIITDPFKLAEESDSMKSRC 360
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Db    301 EVDEETAAILRNSRFAHDFLFTPVEASL-----LAPQTKVIIRDPFKLAEESDKMKPRC 354

Qy    361 VPDAAGGCCGTTKSC 375
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Db    355 APEGTGGCCGKRKSC 369
  
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(B)

102(b) for cl. 13

RESULT 5

AS3MT_MOUSE

ID AS3MT_MOUSE STANDARD; PRT; 376 AA.
AC Q91WU5;
DT 04-JAN-2005, integrated into UniProtKB/Swiss-Prot.
DT 01-DEC-2001, sequence version 1.
DT 07-MAR-2006, entry version 23.
DE Arsenite methyltransferase (EC 2.1.1.137) (S-adenosyl-L-methionine:arsenic(III) methyltransferase) (Methylarsonite methyltransferase).
GN Name=As3mt;
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
OC Muroidea; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP NUCLEOTIDE SEQUENCE [LARGE SCALE MRNA].
RC STRAIN=FVB/N; TISSUE=Colon;
RX MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;
RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Fahey J., Helton E., Kettelman M., Madan A., Rodrigues S., Sanchez A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT "Generation and initial analysis of more than 15,000 full-length human
RT and mouse cDNA sequences."
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
CC -!- FUNCTION: Catalyzes the transfer of a methyl group from AdoMet to
CC trivalent arsenicals producing methylated and dimethylated
CC arsenicals. It methylates arsenite to form methylarsonate, Me-
CC AsO(3)H(2), which is reduced by methylarsonate reductase to
CC methylarsonite, Me-As(OH)2. Methylarsonite is also a substrate and
CC it is converted into the much less toxic compound dimethylarsinate
CC (cacodylate), Me(2)As(O)-OH (By similarity).
CC -!- CATALYTIC ACTIVITY: S-adenosyl-L-methionine + arsenite = S-
CC adenosyl-L-homocysteine + methylarsonate.
CC -!- CATALYTIC ACTIVITY: S-adenosyl-L-methionine + methylarsonite = S-
CC adenosyl-L-homocysteine + dimethylarsinate.
CC -!- SUBCELLULAR LOCATION: Cytoplasm (By similarity).
CC -!- SIMILARITY: Belongs to the methyltransferase superfamily.
CC -----
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CC -----
DR EMBL; BC013468; AAH13468.1; -; mRNA.
DR Ensembl; ENSMUSG00000003559; Mus musculus.
DR MGI; MGI:1929882; As3mt.
DR GO; GO:0005829; C:cytosol; ISS.

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DR      GO; GO:0030791; F:arsenite methyltransferase activity; ISS.
DR      GO; GO:0030792; F:methylarsonite methyltransferase activity; ISS.
DR      GO; GO:0018872; P:arsonoacetate metabolism; ISS.
DR      GO; GO:0009404; P:toxin metabolism; ISS.
DR      InterPro; IPR001601; Methyltransf.
DR      InterPro; IPR013216; Methyltransf_11.
DR      InterPro; IPR000051; SAM_bd.
DR      Pfam; PF08241; Methyltransf_11; 1.
DR      Pfam; PF01209; Ubie_methyltran; 1.
KW      Methyltransferase; Transferase.
FT      CHAIN          1      376      Arsenite methyltransferase.
FT                                          /FTId=PRO_0000204448.
SQ      SEQUENCE      376 AA;  41793 MW;  1E01A283B2C826B3 CRC64;

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Query Match 78.4%; Score 1553.5; DB 1; Length 376;
Best Local Similarity 76.9%; Pred. No. 1.5e-107;
Matches 289; Conservative 38; Mismatches 48; Indels 1; Gaps 1;

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Db	61	GCGLTVPERLENCRIIDLGSGSGRDCYVLSQLVGEKGHVTGIDMTKVQVEVAKTYLEHHM	120
Qy	120	EKYGFQASNVTFIHGYIEKLGEAGIKNESHDIIVSNCVINLVPDKQQVLQEAYRVLKHGG	179
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Reg. cl 13

RESULT 6

AS3MT_RAT

ID AS3MT_RAT STANDARD; PRT; 369 AA.
AC Q8VHT6;
DT 04-JAN-2005, integrated into UniProtKB/Swiss-Prot.
DT 01-MAR-2002, sequence version 1.
DT 07-MAR-2006, entry version 24.
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OC Muroidea; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP NUCLEOTIDE SEQUENCE [MRNA], CHARACTERIZATION, SUBCELLULAR LOCATION, AND MASS SPECTROMETRY.
RC STRAIN=Fischer 344; TISSUE=Liver;
RX MEDLINE=21909523; PubMed=11790780; DOI=10.1074/jbc.M110246200;
RA Lin S., Shi Q., Nix F.B., Styblo M., Beck M.A., Herbin-Davis K.M., Hall L.L., Simeonsson J.B., Thomas D.J.;
RA "A novel S-adenosyl-L-methionine:arsenic(III) methyltransferase from rat liver cytosol.";
RT J. Biol. Chem. 277:10795-10803(2002).
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CC -!- CATALYTIC ACTIVITY: S-adenosyl-L-methionine + methylarsonite = S-adenosyl-L-homocysteine + dimethylarsinate.
CC -!- SUBCELLULAR LOCATION: Cytoplasm.
CC -!- SIMILARITY: Belongs to the methyltransferase superfamily.
CC -----
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CC -----
DR EMBL; AF393243; AAL61609.1; -; mRNA.
DR Ensembl; ENSRNOG00000020081; Rattus norvegicus.
DR RGD; 621325; As3mt.
DR GO; GO:0005829; C:cytosol; IDA.
DR GO; GO:0030791; F:arsenite methyltransferase activity; IDA.
DR GO; GO:0030792; F:methylarsonite methyltransferase activity; IDA.
DR GO; GO:0018872; P:arsonoacetate metabolism; IDA.
DR GO; GO:0009404; P:toxin metabolism; IDA.
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DR InterPro; IPR013216; Methyltransf_11.
DR InterPro; IPR000051; SAM_bd.
DR Pfam; PF08241; Methyltransf_11; 1.
DR Pfam; PF01209; Ubie_methyltran; 1.
KW Methyltransferase; Transferase.
FT CHAIN 1 369 Arsenite methyltransferase.
FT /FTId=PRO_0000204449.
SQ SEQUENCE 369 AA; 41056 MW; BD092F7317B138E6 CRC64;

Query Match 76.8%; Score 1522; DB 1; Length 369;
 Best Local Similarity 76.0%; Pred. No. 3.3e-105;
 Matches 285; Conservative 36; Mismatches 48; Indels 6; Gaps 1;

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Qy      1 MAALRDAEIQKDVQTYYGQVLKRSADLQTNQCVTTARPVPKHIREALQNVHEEVALRYYG 60
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